824 pack baskets as in gathering acorns. At camp when
222 sufficient quantity of cones gathered, men, women prepared bed of sage (uyuga·dul), Artemisia tridentata Nutt. or A. cana Pursh., cones dumped on this, brush fired. Cones tested from time to time
824 to determine whether heat from burning brush had
222 caused scales to open sufficiently; if by time
251 brush burned down cones not sufficiently open, more brush was piled on top of them, roasting continued. After cones fully opened, allowed to cool; nuts shaken, picked out by hand from charred cones or winnowed from dirt and spread out on hides laid on ground around camp to dry for 3-4 days, as for acorns. Cached in pits. Those piñons which fell to ground from cones which had opened on trees as season advanced gathered by hand, brought home unroasted. Roasted piñons often pierced with sharpened twig of mt. lilac (utugu·bï·l), Ceanothus cuneatus, foothill floral area, and strung on long lengths of native twine; lengths of strung piñons festooned over houses when owners returned to village, or made into baskets (p. 32) at piñon grounds. Later these strung piñons eaten as delicacies.

222 During May, green cones of Digger pine twisted
462 from branches, chiefly by men, boys; sliced down
252 sides with obsidian knife; nuts picked out of soft shells, eaten immediately. Later in fall when cones matured but scales still closed, cones gathered by men, boys, roasted and treated in same manner as piñon cones.

222 Small seeds such as chia, wild oats, Mentzelia seeds, juniper berries, gooseberries, manzanita, and boxthorn berries gathered with seed beaters as Steward describes (Steward, 1933, 239). Bunch grass and Polypogon gathered on stem, dried in sun; seeds of wild heliotrope taken out by hand,
[262 eaten raw on spot. Elderberries broken off on stalk, stalk shaken over basket into which ber-
● 264] ries fell. Tule, rush roots, mariposa lily bulbs dug in moist ground with digging stick; woman knelt on both knees, dug to one side or other of her body. Sunflowers treated as Steward describes (Steward, 1933, 239). Center stalk of Spanish bayonet and mescal knocked down at base with stave before stalks budded; prickly buds of Opuntia speared with sharply pointed stick; buds of tree yucca knocked off limb with staves. Leaves, stalks, small plants cut with obsidian knife.

412 Digging stick (u·lu·ini·l) straight stick, 4-5 ft. long, unweighted; made from piece of dry oak sharpened to point on end by rubbing on rock. Straight long stick (ma·wišul), 10 ft. or longer, used for knocking piñons off trees; shepherd's crook staff (olodi·l) had handle 3 1/2 ft. long with 5-in. crook at end. Crook made by bending end of green stick over knee and tying it in bent position with bark rope; stick then left to dry in hot sun for 3 days before crooked end untied.

Preparation of plant foods and beverages.- Mortar and pestle or grinding slab and rub stone

252 heads of Polypogon held over fire to singe off
262 awns, head rubbed between hands to extract seeds and these pounded in pit mortars. All small seeds
● [264 mixed with cold water and made into thick gray-
272] colored gruel (ha·yi·l) which was drunk for refreshment, "like lemonade"; women often gave children drink of this gruel between meals. Two varieties of chia might be used mixed together, but neither mixed with Mentzelia seeds. Although small seeds now regarded as something of delicacy, they are still occasionally gathered in large quantity, using aboriginal methods; in 1933 some Kawaiisu brought 10-lb. flour sack of chia seeds to SM's rancheria, offering them for sale.

243 Wheat now cut by hand, piled up on piece of
252 canvas and thrashed with 4-ft. pole; winnowed in
262 flat tray, parched in oven, pounded into flour in pit mortars, and flour mixed with water and little sugar to make stiff mush. Corn is eaten on cob in roasting ear stage or allowed to dry on cob; 2 cobs twisted against each other to remove kernels, which are parched, pounded, winnowed, and meal made into mush.

252 Juniper berries boiled fresh; when dry and
262 fully ripe seeded by hand, flesh pounded in pit mortars and eaten raw; pounded mass never dried into cakes or beverage made from berries. Flesh of juniper berries "sweet." Ripe boxthorn berries pounded in pit mortar, taken up in hands, mixed with small amount of water and made into "biscuits" which were dried in sun; no fat added. These small balls stored; when used broken up, soaked in water, eaten; tasted "just like grapes." Elderberries boiled in clay pot with water and
[251] eaten (SM); FP said they "tasted queer." Never stored for winter.

Rush roots peeled, sun-dried, pounded into flour (obolinil) in mortar, mixed with water and stone boiled into mush.

252 Several plant foods roasted; for mescal short
264 trench dug, fire made in trench, tender young
262 stalks cut in half, laid on fire, covered with dirt and left overnight. In morning stalks uncovered, peeled, and eaten. Quantity of Spanish bayonet stalks laid directly on top of blazing brush fire; stalks turned once while cooking; when soft, stalks buried in dirt or sand, left to cool; burying made peel "slip off easier" (SM). Fleshy receptacles of Opuntia buds held over fire on end of sharp-pointed stick to singe off stickers (ukun), then spread on hot flat rock placed at bottom of pit, covered with another hot rock and pit filled with loose earth or hot ashes. Receptacles left to roast for about 8 hours; when taken out of pit outer skin peeled off and inner part eaten. Fleshy stalks wild rhubarb roasted overnight in hot ashes, eaten next morning.

252 Immature pods of tree yucca, while still in-
262 side green sheath, "boiled like cabbage" in clay pot (SM).

Several plant foods eaten raw by gatherer on spot; such included berries of deadly nightshade;

171 use honey dew which forms on Phragmites communis, also on rush, Juncus; Yavapai and Papago obtain it principally from willow, but also from cane.

262 263 Tübatulabal also occasionally sucked sections of freshly cut cane for its sweetness (SM).

Saline crystals which form in dry hot weather on salt grass made into "salt" (tu·t). Salt grass 258 grows in saline areas, on valley floors, at base 137 of foothills; its utilization among Tübatulabal 824 depended on weather, as "after a rain it takes a month for salt grass to get salt again" (SM). Grass cut, spread out on mats to dry in sun; after grass thoroughly dry same process followed as described above for obtaining honey dew, save that collected crystals made up into balls or flat cakes instead of being spread on tule tray. Chunks [272 278 757] equal to 2-3 full tablespoons broken off dry ball, dissolved in cupful of water and drunk either for refreshment or as laxative and to rinse out stomach. Salt-grass crystals also obtained by children who took willow switches and "swept" salt grass with them early on summer mornings; when sufficient quantity of crystals had adhered to stick, child took it to shady spot and licked off crystals. Fresh salt grass soaked in water and this water sprinkled over raw chopped clover, or sprigs [262 263] of salt grass and clover rolled between hands and eaten. Substance manufactured from salt grass never used to season meat or mushes.

314 824 Chewing gum made from milky juice of Asclepias erosa Torr. (pololi·wa·bI·l); stalk of plant cut near top before it blossomed and juice collected in 4-in. tubular sections of jointed stalk of Eriogonum elongatum gramineum n. var. Stokes (ined.), (šiko·ništ). Joint of stalk served as natural stopper for bottom end of tubular section; juice run into stalk through open upper end; filled sections of stalk set in hot ashes to roast until plant juice inside has congealed; stalks then cut open, gum removed and chewed. This gum "better than store gum" (ES).

262 264 Meals.- Meals eaten twice daily around sunrise and before sundown. At morning meal (wi·lil) and evening meal (tu·kil) men, children ate first, then women. Meat eaten at both meals, "if people had it." Men, women used spoons (ta·mil) made [415] from antelope horn (ša·wun) for eating acorn mush (SM), or wooden spoons (FP); PN said spoons of elk, antelope horn not made. Acorn mush eaten with fingers (MM). No formula spoken before eating. Children pieced during day; "mothers gave [753] them a cup of chia gruel" (SM). Food rarely eaten after dark as ghosts "come around at night; they [774 609] might throw something in the food that would make a person sick" (SM, FP). Because strangers potential enemies who might put poison in food, person avoided eating with them. Women when out for day gathering seeds, tending tobacco, etc., took lunch with them which they ate about 10 or 11 a.m.; men hunting deer "didn't take any food; they came home in the evening" (FP).